

Claims

1. Image generation unit, in particular for an image projection device, or the like, comprising:
 - 5 - a light input or a light incidence surface (30i) or section (30i) which is arranged and/or adapted for receiving primary illumination light (L1) essentially along or from a first or light incidence axis (Z1) or direction (Z1)
 - an image generation element arrangement (60) which is arranged and/or
10 adapted for producing an image (I) by using said primary illumination light (L1) or a part or derivative of said primary illumination light (L1) and to thereby generate secondary illumination light (L2) or image light, and
 - a light output or light emission surface (30o) or section (30o) which is
15 arranged and/or adapted for emitting said secondary illumination light (L2) or a part or derivative of said secondary illumination light (L2) as tertiary illumination light (L3) or projection light (L3) being representative for said image essentially along or in a second or image emission axis (Z2) or direction (Z2),
characterized in that
 - 20 - said light input or light incidence surface (30i) or section (30i) and said light output or said light emission surface (30o) or section (30o) are formed/or are arranged in a manner that
 - said first or light incidence axis (Z1) or direction (Z1) and said second or
25 image emission axis (Z2) or direction (Z2) are collinear or essentially collinear, parallel or essentially parallel, or coincident or essentially coincident with respect to each other.
2. Image generation unit according to claim 1,
 - wherein a polarization selective beam splitting device (10) is provided,
 - 30 - said polarization selective beam splitting device (10) having a light input surface (10i) or section (10i) serving as said light input or light incidence surface (30i) or section (30i) of said image generation unit (30) or as a part thereof and
 - said polarization selective beam splitting device (10) having a light output
35 surface (10o) or section (10o) serving as said light output or light emission surface (30o) or section (30o) of said image generation unit (30) or as a part thereof.
3. Image generation unit according to any one of the preceding claims,

wherein a polarization selective beam splitting device (10) is a beam splitting cube (10), a first pair of opposing surfaces (10i, 10o) of which serving as said light input or light incidence surface (30i) or section (30i) of said image generation unit (30) or as a part thereof and as said light output or light emission surface (30o) or section (30o) of said image generation unit (30) or as a part thereof, respectively.

4. Image generation unit according to any one of the preceding claims 2 or 3, wherein said polarization selective beam splitting device (10) comprises a polarization selective beam splitting interface (10s) which is adapted to reflect light of a first or p-polarized/s-polarized polarization state and which is adapted to transmit light of a second or s-polarized/p-polarized polarization state.

5. Image generation unit according to any one of the preceding claims, wherein said image generation element arrangement (60) or the elements or the parts thereof are positioned outside a path or passage defined by said first and second axes (Z1, Z2) or by said first and second directions (Z1, Z2) and/or outside said polarization selective beam splitting device (10) or its polarization selective beam splitting interface (10s).

6. Image generation unit according to any one of the preceding claims, wherein said image generation arrangement (60) comprises an imager panel element (61), in particular a reflective imager panel element (61), in particular in the form of a LCD-panel, being adapted to controllably generate an image.

7. Image generation unit according to any one of the preceding claims, wherein said image generation element arrangement (60) comprises a reflective arrangement (62), in particular a mirror (62) which is in particular adapted and arranged to receive light reflected by said polarization selective beam splitting interface (10s) or a derivative thereof and to reflect said received light back, thereby changing its polarization state from p to s and/or from s to p, respectively.

8. Image generation unit according to any one of the preceding claims, wherein said image generation element arrangement (60) comprises a color switching element (63) which is adapted to controllably generate at least one first spectral component of incident light and to essentially avoid transmission of the complimentary spectral range of said at least one first spectral range.

9. Image generation unit according to claim 8, wherein said color switching element (63) is or comprises a quarter wave retarder (63-2) and/or a reflective electronic color switch (63-2).

5 **10.** Image generation unit according to any one of the preceding claims,
- wherein said imager panel element (61), on the one hand, and said reflective arrangement (62) together with said color switching element (63), on the other hand, are arranged or positioned at or in a second pair of opposing sections, areas or surfaces (10p, 10c; 30p, 30c) of said image
10 generation unit (30) and in particular of said polarization selective beam splitting device (10),

- which are in particular different from said light input or light incidence surface (30i) or section (30i) and said light output or light emission surface (30o) or section (30o) of said image generation unit (30) and
15 further

- which are in particular different from said light input surface (10i) or section (10i) and said light output surface (10o) or section (10o) of said polarization selective beam splitting device (10).

20 **11.** Image generation unit according to any one of the preceding claims, wherein said opposing sections, areas or surfaces (10p, 10c; 30p, 30c) of said image generation unit (30) and in particular of said polarization selective beam splitting device (10) are essentially perpendicular oriented with respect to said light input or light incidence surface (30i) or section (30i) and said light output
25 or light emission surface (30o) or section (30o) of said image generation unit (30) and in particular essentially perpendicular oriented with respect to said light input surface (10i) or section (10i) and said light output surface (10o) or section (10o) of said polarization selective beam splitting device (10).

30 **12.** Image projection device, comprising:

- an illumination unit (20) which is arranged and/or adapted for generating primary illumination light (L1),

- an image generation unit (30) which is arranged and/or adapted to receive said primary illumination light (L1) and to generate and emit an image (I),
35 and

- a projection unit (40) which is arranged and/or adapted to receive and project said image (I),

- wherein said image generation unit (30) is formed according to any one of the preceding claims 1 to 11.